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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,496	10/17/2001	Raymond C. Kwong	UDC-0008	6929

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Thomas F. Meagher, Esq.
Kenyon & Kenyon
One Broadway
New York, NY 10004

EXAMINER	
YAMNITZKY, MARIE ROSE	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/981,496	KWONG ET AL.	
	Examiner	Art Unit	
	Marie R. Yamnitzky	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *142-161* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *142-161* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This Office action is in response to applicants' amendment received November 05, 2003, which amends the specification, cancels claims 1-141 and adds claims 142-161.

Claims 142-161 are pending. The new claims are supported by the application as originally filed; in particular, by original claims 53-59, 61, 63, 64, 117-123, 125, 127 and 128.

2. The objections to the disclosure as set forth in the Office action mailed July 01, 2003 are overcome in part by applicants' amendment. The objection with respect to the description of Fig. 7 and Fig. 8 is withdrawn in consideration of applicants' arguments.

The claim rejections set forth in the July 1st Office action are moot since all rejected claims have been cancelled.

The issues raised under 35 U.S.C. 112, 2nd paragraph, and 35 U.S.C. 102(e) in the July 1st Office action are not applicable to the present claims.

The issues raised under 35 U.S.C. 103(a) in the July 1st Office action with respect to the published application of Thompson et al. (US 2002/0034656 A1) are not applicable to the present claims.

Based on claims amendments made in copending Application No. 09/978,455 and the present application, there is currently no issue of obviousness-type double patenting between these two applications.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 142-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. (US 2001/0019782 A1).

See the whole published application. Igarashi et al. disclose specific iridium compounds similar to the compounds of the present claims (e.g. see formulae (2-2) and (2-8)) and suggest the compounds within the scope of the present claims (e.g. see paragraphs [0025]-[0026], [0043]-[0045] and [0050]). Igarashi et al. disclose the iridium compounds for use in a light-emitting device.

Various ligands and substituents are taught by Igarashi et al. (e.g. see paragraphs [0043]-[0045] and [0050]). Methyl, trifluoromethyl and methoxy groups are disclosed as suitable substituents, as is a fluorine atom (see the fourth, sixth and twenty-fourth lines of paragraph [0050] and the sixteenth line from the end of paragraph [0050]).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make various compounds suggested by Igarashi et al. in order to provide a variety of compounds suitable for Igarashi's light emitting device. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to provide substituted compounds containing substituents at various locations on the ligands. One of ordinary skill in the art, considering Igarashi's teachings as a whole, would have recognized that combinations of different ligands, as well as different patterns of substitution on a ligand, can provide light

emitting compounds having different peak emission wavelengths (e.g. see Igarashi's Examples). It would have been within the level of ordinary skill of a worker in the art to determine suitable and optimum combinations of ligands, combinations of substituents, and substitution patterns appropriate for the intended use of the compound and a light emitting device comprising such a compound.

5. Claims 142, 143, 147-149, 152, 153 and 157-159 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grushin et al. (US 2002/0121638 A1).

See the whole published application. Grushin et al. disclose iridium compounds for use in an emitting layer of a light emitting device. Grushin et al. suggest the compounds within the scope of the present claims which comprise a fluorine or trifluoromethyl substituent.

Grushin et al. teach that in the ligand(s) having the structure (I) shown on page 1, adjacent pairs of R_1-R_4 can join to form a six-membered ring. Structure (I) in which R_3 and R_4 join to form a six-membered aromatic ring, as in Grushin's compounds of formulae (III) and (IV), provides the phenylquinoline ligand of the present compounds.

Grushin's compounds are required to comprise at least one fluorine, fluorinated alkyl or fluorinated alkoxy group.

In addition to the ligands having the structure (I), Grushin et al. teach that the compounds may have at least one additional ligand selected from "[a]ny conventional ligands known to transition metal coordination chemistry" such as acetylacetonate as a bidentate ligand (paragraph [0042]).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make various compounds suggested by Grushin et al. in order to provide a variety of compounds suitable for Grushin's light emitting device. It would have been within the level of ordinary skill of a worker in the art at the time of the invention to provide substituted compounds containing substituents at various locations on the ligands. One of ordinary skill in the art, considering Grushin's teachings as a whole, would have recognized that combinations of different ligands, as well as different patterns of substitution on a ligand, can provide light emitting compounds having different peak emission wavelengths (e.g. see Table 7). It would have been within the level of ordinary skill of a worker in the art to determine suitable and optimum combinations of ligands, combinations of substituents, and substitution patterns appropriate for the intended use of the compound and a light emitting device comprising such a compound.

6. Claims 142, 143, 149-153 and 159-161 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamansky et al. (US 2002/0182441 A1).

(The applied reference has a common inventor with the instant application, but a different inventive entity. Current Office assignment records indicate that the present application and the application published as Lamansky's '441 publication are not commonly owned.)

See the whole published application, especially claims 1, 5 and 8. Lamansky et al. suggest the compounds within the scope of the present claims having at least one fluorine or methyl substituent. Lamansky's published application suggests iridium complexes comprising at

least one phenylquinoline ligand which may be substituted with at least one halogen such as F, or an alkyl such as methyl (see the last formula in claim 5). Lamansky's published application suggests iridium complexes comprising an acetylacetonate ligand (see the first formula in claim 8). It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make various compounds having ligands of the structures specifically disclosed in Lamansky's published application. One of ordinary skill in the art would have been motivated to provide a variety of compounds within the scope of Lamansky's claims in order to provide a variety of compounds suitable for use in an organic light emitting device as taught and claimed by Lamansky. One of ordinary skill in the art would have reasonably expected that compounds of Lamansky's claims having two phenylquinoline ligands of the formula shown in Lamansky's claim 5 and an acetylacetonate ligand of the formula shown in Lamansky's claim 8 would provide light emissive compounds suitable for use in Lamansky's device.

Further, it would have been within the level of ordinary skill of a worker in the art to provide substituents at various positions on the phenylquinoline ligand, and it would have been *prima facie* obvious to provide one or more fluorine or methyl substituents since Lamansky's claims allow the phenylquinoline ligand to be substituted one or more times with halogen or alkyl substituents.

7. Applicants' arguments filed November 05, 2003 have been fully considered but they are not persuasive.

Applicants argue that the new claims are directed to nine specific compounds and devices comprising those compounds, and that the new claims are patentable over the previously applied references.

The nine specific compounds of the present claims are nine of the eleven specific compounds claimed in original claims 53-64, with original claims 117-128 being drawn to organic light emitting devices comprising those compounds. The examiner maintains that claims drawn to these compounds and devices comprising these compounds are not patentable under 35 U.S.C. 103(a). Applicants' arguments do not specifically point out how the presently claimed compounds and devices are patentably distinguishable over the references.

8. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

US 6,670,645 B2 to Grushin et al. is related to Grushin's published applications already of record in the present application. Claim 1 of the '645 patent is drawn to a compound that is a position isomer of the compounds claimed in present claims 147 and 148.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
February 02, 2004

Marie R. Yamnitzky

MARIE YAMNITZKY
PRIMARY EXAMINER

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